

**Fifth International Information Forum on Safety Analyses for NPP of WWER
and RBMK Types. 16 - 20 October, 2000, Obninsk, Russian federation**

Level 1 & 2 PSA Activities in Slovak Republic

by

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Nuclear power plants in Slovak republic

◆ V1 NPP in J. bohunice

- located 2.5 km from the village of J.Bohunice in the Trnava district
- two units of 440 megawatts (electrical) capacity equipped with VVER440/230 type pressurized water reactors, each reactor supplies two turbine generators
- the reactor units were commissioned during the period 1978 to 1981

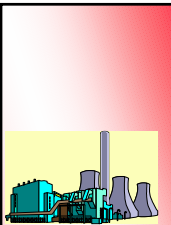
◆ V2 NPP in J. bohunice

- two units of 440 megawatts (electrical) capacity are equipped with VVER440/213 type pressurized water reactors, each reactor supplies two turbine generators
- the reactor units were commissioned during the period 1984 to 1985

◆ Mochovce NPP

- located in the south-west part of Slovakia between the towns Nitra and Levice
- two units of 440 megawatts (electrical) capacity are equipped with VVER440/213 type pressurized water reactors, each reactor supplies two turbine generators
- unit 1 began commercial operation in September 1998, unit 2 in January 2000





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Level 1 PSA for J. Bohunice V1 NPP (unit 1)

◆ **Full power level 1 PSA:**

- pre - small reconstruction PSA
- post - small reconstruction PSA
- post - gradual reconstruction PSA

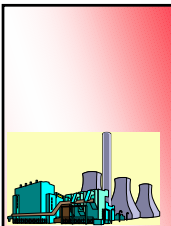
◆ **Shutdown level 1 PSA:**

- post - gradual reconstruction (being undertaken by RELKO)

◆ **Riskmonitor:**

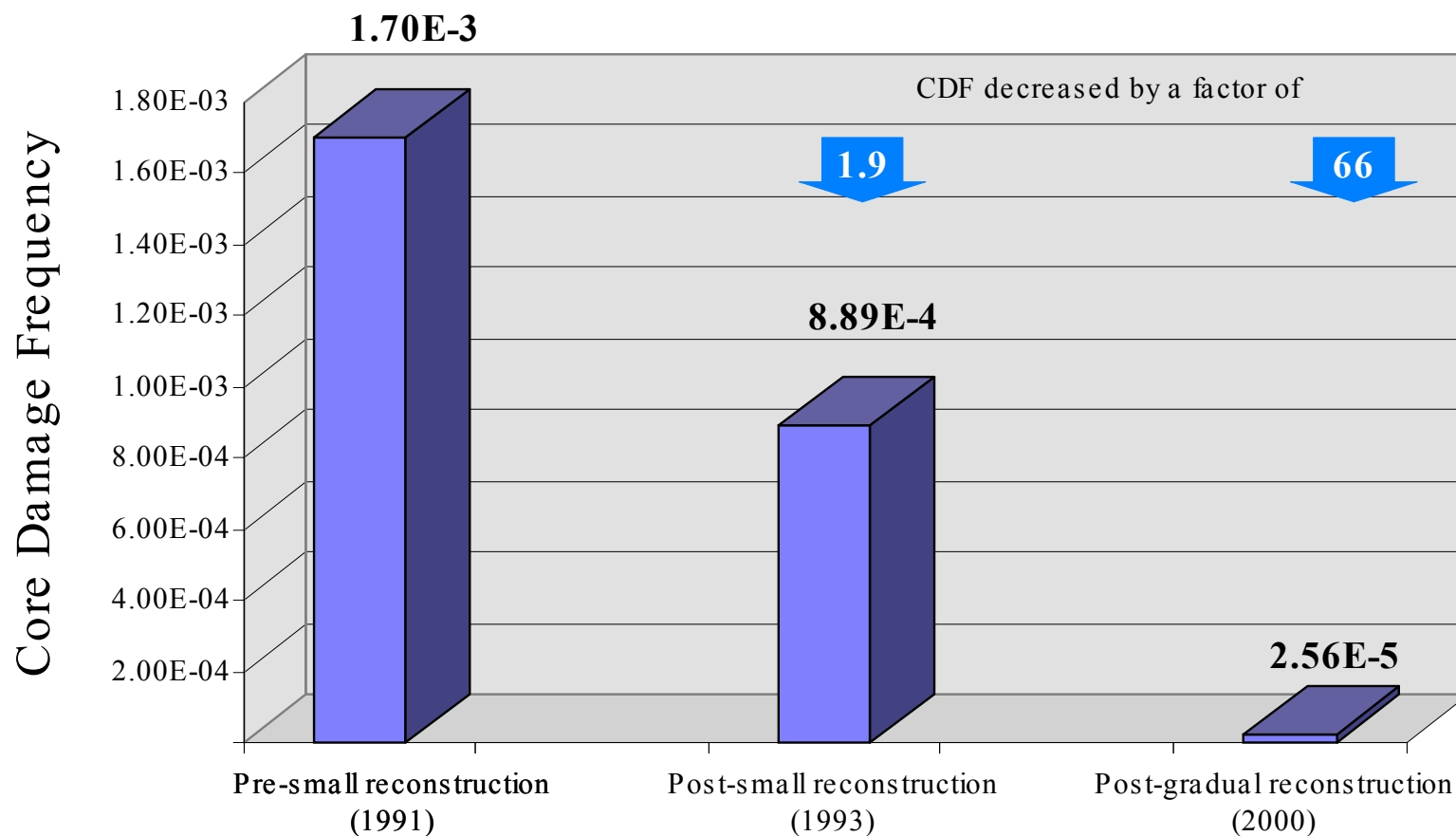
- full power riskmonitor (being undertaken by RELKO)

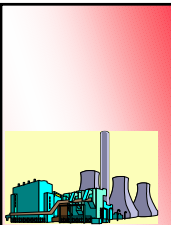




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Comparison of V1 PSA results





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Level 1 PSA for J. Bohunice V2 NPP (unit 3)

◆ Full power level 1 PSA:

- pre - implementation of symptom based emergency procedures
- post - implementation of symptom based emergency procedures

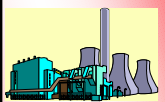
◆ Shutdown level 1 PSA:

- pre - implementation of symptom based emergency procedures

◆ Riskmonitor:

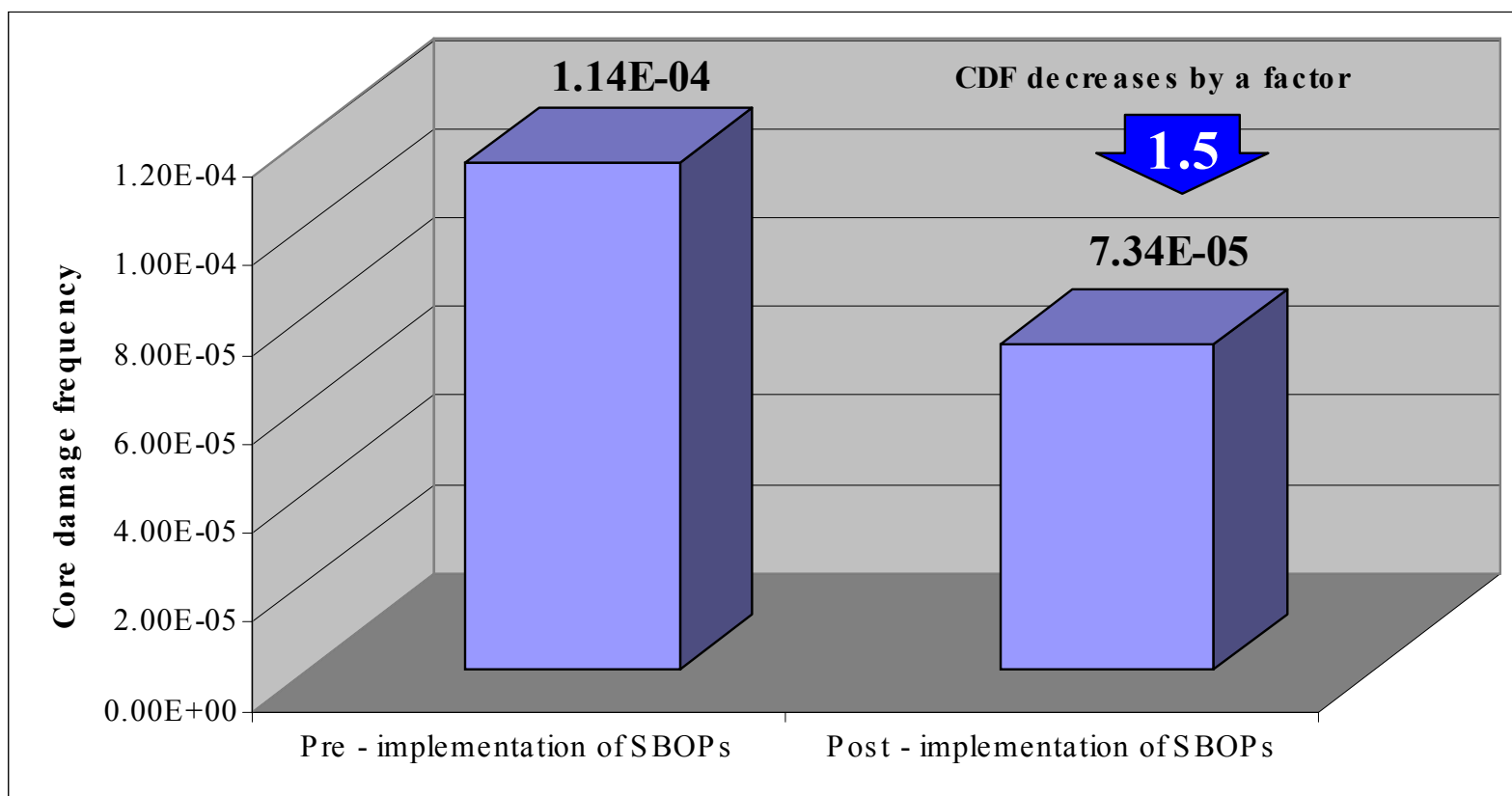
- full scope (full power and shutdown) riskmonitor for pre - implementation of symptom based emergency procedures

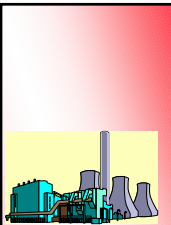




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Comparison of V2 PSA results



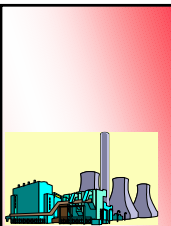


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Level 1 PSA for Mochovce V1 NPP (unit 1)

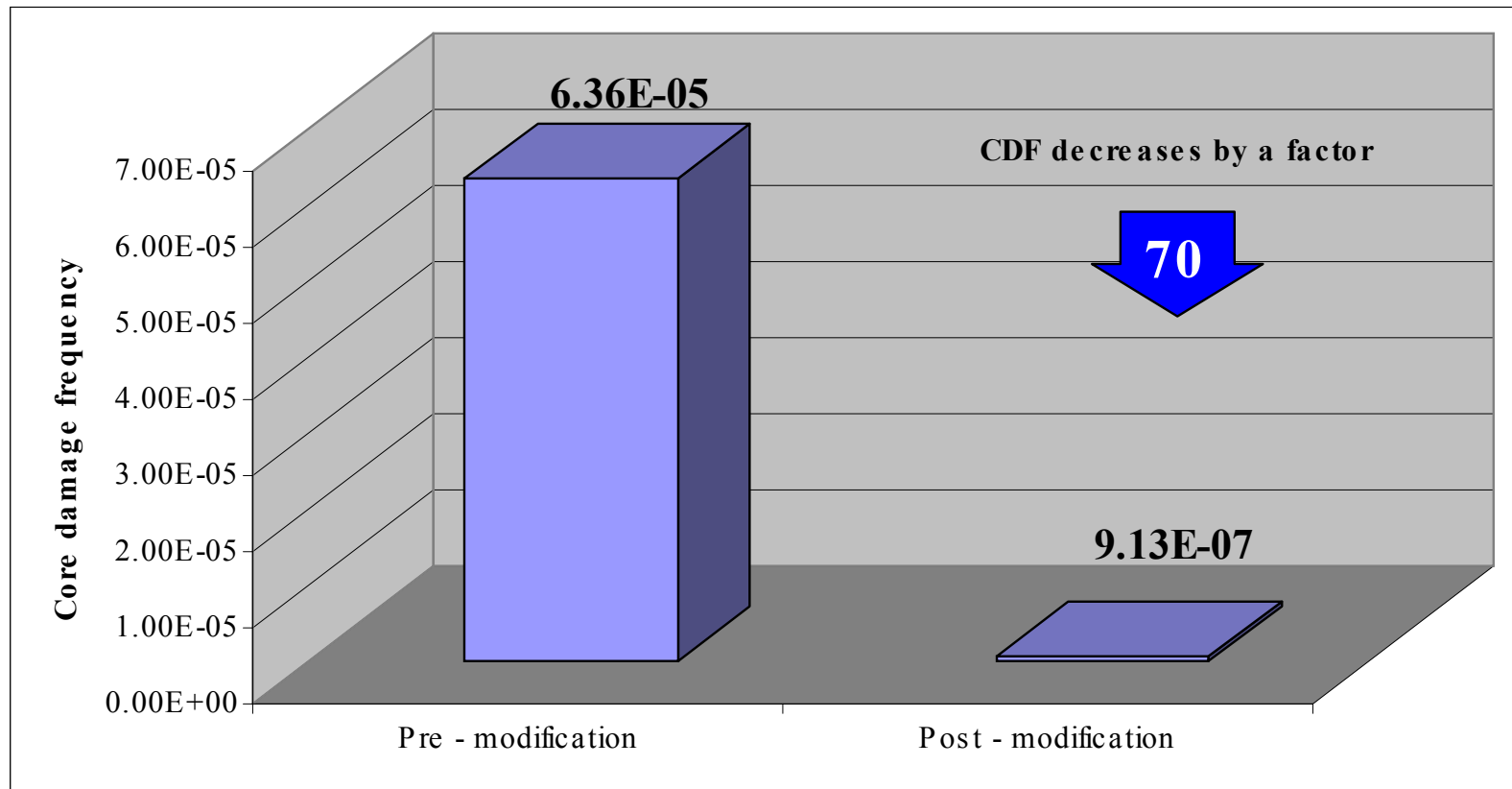
- ◆ **Full power level 1 PSA:**
 - pre - modification PSA
 - post - modification PSA with implementation of symptom based emergency procedures
- ◆ **Shutdown level 1 PSA:**
 - no shutdown PSA (planned)
- ◆ **Riskmonitor:**
 - no riskmonitor (planned)





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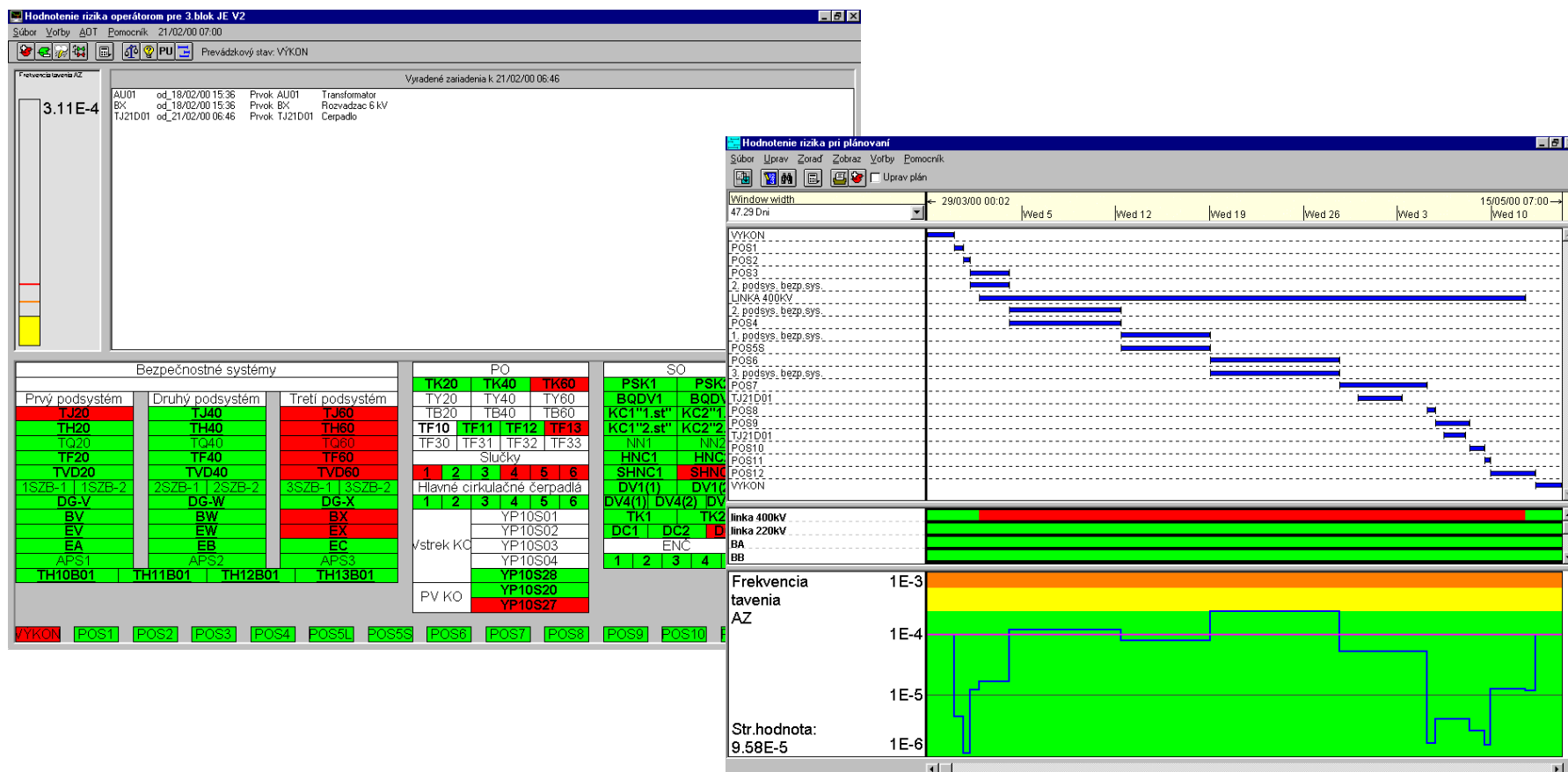
Comparison of Mochovce PSA results

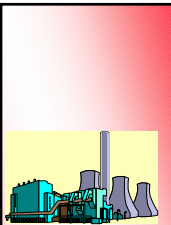




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EOOS Riskmonitor code used in Slovakia





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Level 2 PSA for J. Bohunice V1 NPP (unit 1)

- basic engineering level 2 PSA

Level 2 PSA for J. Bohunice V2 NPP (unit 3)

- full power level 2 PSA (being undertaken by RELKO)
- shutdown level 2 PSA (being undertaken by RELKO)

Level 2 PSA for Mochovce NPP

- no level 2 PSA activities





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Results of Level 2 PSA for J. Bohunice V1 NPP (unit 1)

- SOLOMON CET code used for Level 2 calculations

Plant Damage States	Level 1 Frequencies		Level 2 Large Release Frequencies			
			Current Confinement		Confinement Upgrade	
	Current Plant State	Basic Eng. Upgrade	Current Plant State	Basic Eng. Upgrade	Current Plant State	Basic Eng. Upgrade
LB LOCA	1.00E-5	1.10E-6	1.00E-5	1.10E-6	2.39E-9	2.63E-10
Other LOCAs	1.97E-4	4.09E-4	9.88E-5	2.19E-4	1.12E-4	2.52E-4
SGTRs	7.44E-5	1.75E-4	6.25E-5	1.47E-4	2.23E-5	5.25E-5
IL LOCAs	7.13E-6	1.18E-5	4.56E-6	7.55E-6	3.78E-6	6.25E-6
Transients	3.40E-4	5.88E-5	2.12E-4	2.89E-5	4.34E-7	8.75E-9

